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Бойчук Дмитро Миколайович

Київський національний університет технологій та дизайну
(м. Київ)

Науковий керівник – к. культ. Чернець М. О.

CHROMIUM VI IN LEATHER UPDATED

While there are many arguments about chromium in leather, there are certain issues that can be accepted to operate in the international supply chain:

Chromium III is different from chromium VI (Cr VI)

Chromium III is not toxic but Cr VI is

There needs to be an accepted test method and agreed limit to enable international trade to occur.

At the present time, there is much discussion in different organisations within the European Commission and these are at different stages of development.

Previous results have been reported which involved spiking trials of crust

leather with potassium chromate, to give various concentrations of Cr VI within the leather. The research indicated that leather has a reductive capacity and that between 4-40mg/g of Cr VI which can be farther reduced (when spiking at 50mg/g).

Many BLC Leather Technology Centre members are frustrated by the results of Cr VI content test which is varying in reports from labs to labs and from the same sample at different times of analysis.

Recent analytical investigations at BLC Leather Technology Centre confirm that these frustrations are based upon variability inherent in the test method. It can be seen that the initial results of 5.3mg/kg decay to 0.6mg/kg of the total dry weight of leather in the leather article or the leather parts after four weeks. In some cases, the opposite has been reported. This data does not confirm that Cr VI is either being created or destroyed but that the repeatability of the method is unreliable at the levels of 3mg/kg that are currently operating.

There are several methods for determining Cr VI in leather but they are all based upon aqueous extraction and subsequent development of colour with diphenylcarbazide. The colour is read by spectrophotometric means. The extraction can be influenced by colour leaching from the leather; the use of Dionex cartridges can assist in clearing colour but nevertheless colour is an influencing factor.

This test method is referred to in "*Vogel Text book of quantitative chemical analysis-fifth edition, 1989*" as a primary method so we have no reason to consider the method invalid. It is understood that the method is based upon the oxidation of the diphenylcarbazide to the car bazone due to Cr VI which converts to chromium III; the chromium III reacts with the diphenylcarbazone to form pink colour.

In the matrix (aqueous extract), there are many chemicals that could conceivably influence the oxidation of diphenylcarbazide, and there is an excess of chromium III in leather extracts that could create the pink colour. It is necessary to ensure that a limit of detection is set to eliminate the possibility of a false positive result.

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Водолазська Євгенія Олексівна

Київський національний університет технологій та дизайну

(м. Київ)

Науковий керівник – к. культ. Чернець М. О

ERA OF GOTHIC DRESS CULTURE

The exact dates of the fall of Rome are heavily debated by historians. Many place it at about 476 A.D. The Empire of Rome had been invaded by many Germanic or northern cultures including, Visigoths, Vandals, Ostrogoths, Huns, Angles, Saxons, Jutes and Franks. During these invasions many shipping and highway networks that had allowed for communication and trade between the eastern and western parts of the Empire were destroyed, dividing and segregating it. As a result of this division the artistic and cultural life of Rome was wiped out and replaced by the cultures of these warring tribes. The only unity between these provinces existed solely in the Christian church. this period is known as the Middle Ages or the Dark Ages. Life in the Middle